```
FILE 'HOME' ENTERED AT 11:39:14 ON 05 FEB 2008

=> b reg
COST IN U.S. DOLLARS                                  SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       0.21       0.21

FILE 'REGISTRY' ENTERED AT 11:39:29 ON 05 FEB 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2008 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    4 FEB 2008  HIGHEST RN 1001463-85-9
DICTIONARY FILE UPDATES:   4 FEB 2008  HIGHEST RN 1001463-85-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/support/stngen/stndoc/properties.html

=> S 107-13-1/RN
L1            1 107-13-1/RN

=> S 79-06-1/RN
L2            1 79-06-1/RN

=> index bioscience
FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED
COST IN U.S. DOLLARS                                  SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       0.46       0.67

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,
       AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS,
       CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB,
       DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 11:40:16 ON 05 FEB 2008

69 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view
search error messages that display as 0* with SET DETAIL OFF.

=> b reg
COST IN U.S. DOLLARS                                  SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       0.65       1.32

FILE 'REGISTRY' ENTERED AT 11:40:35 ON 05 FEB 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
```

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 4 FEB 2008 HIGHEST RN 1001463-85-9
DICTIONARY FILE UPDATES: 4 FEB 2008 HIGHEST RN 1001463-85-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

http://www.cas.org/support/stngen/stndoc/properties.html

=> sel L1 chem
E1 THROUGH E17 ASSIGNED

=> sel L2 chem
E18 THROUGH E26 ASSIGNED

=> index bioscience
FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED
COST IN U.S. DOLLARS   SINCE FILE   TOTAL
                                           ENTRY   SESSION
FULL ESTIMATED COST   1.18   2.50

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,
       AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS,
       CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB,
       DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 11:40:50 ON 05 FEB 2008

69 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view
search error messages that display as 0* with SET DETAIL OFF.

=> s e1-17 (s) e18-26
         16   FILE AGRICOLA
          9   FILE ANABSTR
         19   FILE ANTE
          5   FILE AQUALINE
          2   FILE AQUASCI
         42   FILE BIOENG
        107   FILE BIOSIS
        143   FILE BIOTECHABS
        143   FILE BIOTECHDS
         29   FILE BIOTECHNO
         16   FILE CABA
       3865   FILE CAPLUS
  15 FILES SEARCHED...
         64   FILE CEABA-VTB
         30   FILE CIN

```
          4   FILE CONFSCI
          2   FILE CROPU
          3   FILE DDFB
          4   FILE DDFU
         51   FILE DGENE
         10   FILE DISSABS
          3   FILE DRUGB
          4   FILE DRUGU
          1   FILE EMBAL
         64   FILE EMBASE
         43   FILE ESBIOBASE
  30 FILES SEARCHED...
          7   FILE FROSTI
         14   FILE FSTA
          6   FILE HEALSAFE
       3317   FILE IFIPAT
         57   FILE LIFESCI
         53   FILE MEDLINE
         45   FILE NTIS
        291   FILE PASCAL
  47 FILES SEARCHED...
          2   FILE PHIN
        191   FILE PROMT
         43   FILE RDISCLOSURE
        306   FILE SCISEARCH
          1   FILE SYNTHLINE
        240   FILE TOXCENTER
         72   FILE USGENE
      22634   FILE USPATFULL
       3144   FILE USPATOLD
  62 FILES SEARCHED...
       2942   FILE USPAT2
         10   FILE WATER
       4551   FILE WPIDS
         28   FILE WPIFV
       4551   FILE WPINDEX

  47 FILES HAVE ONE OR MORE ANSWERS,   69 FILES SEARCHED IN STNINDEX

L3   QUE (ACRYLON/BI OR ACRYLONITRILE/BI OR CARBACRYL/BI OR CYANOETHENE/BI OR C
         YANOETHYLENE/BI OR FUMIGRAIN/BI OR "NSC 6362"/BI OR PROPENENITRILE/BI
         OR VCN/BI OR VENTOX/BI OR "VINYL CYANIDE"/BI OR 107-13-1/BI OR 2-PROPE
         NENITRILE/BI OR 29754-21-0/BI OR 63908-52-1/BI OR 769126-92-3/BI OR 76
         9134-66-9/BI) (S) (ACRYLAMIDE/BI OR "ACRYLIC AMIDE"/BI OR "BIO-ACRYLAM
         IDE 50"/BI OR ETHYLENECARBOXAMIDE/BI OR "NSC 7785"/BI OR PROPENAMIDE/B
         I OR "VINYL AMIDE"/BI OR 2-PROPENAMIDE/BI OR 79-06-1/BI)

=> s L3 (s) enzym########
          2   FILE AGRICOLA
          1   FILE ANABSTR
          2   FILE AQUASCI
         19   FILE BIOENG
         11   FILE BIOSIS
         65   FILE BIOTECHABS
         65   FILE BIOTECHDS
         12   FILE BIOTECHNO
          1   FILE CABA
  14 FILES SEARCHED...
         47   FILE CAPLUS
         12   FILE CEABA-VTB
          2   FILE CIN
```

```
        30   FILE DGENE
         5   FILE EMBASE
        11   FILE ESBIOBASE
  30 FILES SEARCHED...
         1   FILE FROSTI
         8   FILE FSTA
         1   FILE HEALSAFE
        16   FILE IFIPAT
        24   FILE LIFESCI
         3   FILE MEDLINE
        13   FILE PASCAL
  47 FILES SEARCHED...
         8   FILE PROMT
         1   FILE RDISCLOSURE
         7   FILE SCISEARCH
         3   FILE TOXCENTER
        72   FILE USGENE
       125   FILE USPATFULL
         5   FILE USPATOLD
        13   FILE USPAT2
         1   FILE WATER
        54   FILE WPIDS
         1   FILE WPIFV
        54   FILE WPINDEX

  34 FILES HAVE ONE OR MORE ANSWERS,   69 FILES SEARCHED IN STNINDEX

L4   QUE L3 (S) ENZYM########

=> s L4 (s) (convert### or produc### or generat###)
         1   FILE ANABSTR
        13   FILE BIOENG
         5   FILE BIOSIS
        45   FILE BIOTECHABS
  11 FILES SEARCHED...
        45   FILE BIOTECHDS
         4   FILE BIOTECHNO
         1   FILE CABA
        15   FILE CAPLUS
         5   FILE CEABA-VTB
  17 FILES SEARCHED...
        27   FILE DGENE
  23 FILES SEARCHED...
         1   FILE EMBASE
         5   FILE ESBIOBASE
  30 FILES SEARCHED...
         1   FILE FROSTI
         1   FILE FSTA
        11   FILE IFIPAT
  39 FILES SEARCHED...
        14   FILE LIFESCI
         7   FILE PASCAL
  47 FILES SEARCHED...
         4   FILE PROMT
         1   FILE RDISCLOSURE
         2   FILE SCISEARCH
  59 FILES SEARCHED...
        72   FILE USGENE
        75   FILE USPATFULL
         3   FILE USPATOLD
        10   FILE USPAT2
```

```
  63 FILES SEARCHED...
        15   FILE WPIDS
        15   FILE WPINDEX

  26 FILES HAVE ONE OR MORE ANSWERS,   69 FILES SEARCHED IN STNINDEX

L5   QUE L4 (S) (CONVERT### OR PRODUC### OR GENERAT###)

=> s L5 and (detect### or determin### or measur### or quantitat###)
         1   FILE ANABSTR
         1   FILE BIOENG
  10 FILES SEARCHED...
         9   FILE BIOTECHABS
         9   FILE BIOTECHDS
         1   FILE BIOTECHNO
  13 FILES SEARCHED...
         2   FILE CAPLUS
        20   FILE DGENE
  23 FILES SEARCHED...
         1   FILE ESBIOBASE
  30 FILES SEARCHED...
  41 FILES SEARCHED...
         1   FILE LIFESCI
         1   FILE PASCAL
  47 FILES SEARCHED...
  59 FILES SEARCHED...
        72   FILE USPATFULL
         3   FILE USPATOLD
         9   FILE USPAT2
  63 FILES SEARCHED...
         6   FILE WPIDS
         6   FILE WPINDEX

  15 FILES HAVE ONE OR MORE ANSWERS,   69 FILES SEARCHED IN STNINDEX

L6   QUE L5 AND (DETECT### OR DETERMIN### OR MEASUR### OR QUANTITAT###)

=> d rank
F1          72   USPATFULL
F2          20   DGENE
F3           9   BIOTECHABS
F4           9   BIOTECHDS
F5           9   USPAT2
F6           6   WPIDS
F7           6   WPINDEX
F8           3   USPATOLD
F9           2   CAPLUS
F10          1   ANABSTR
F11          1   BIOENG
F12          1   BIOTECHNO
F13          1   ESBIOBASE
F14          1   LIFESCI
F15          1   PASCAL


=> fil f2-14
COST IN U.S. DOLLARS                        SINCE FILE      TOTAL
                                               ENTRY    SESSION
FULL ESTIMATED COST                            13.65      16.15

FILE 'DGENE' ENTERED AT 11:53:34 ON 05 FEB 2008
```

COPYRIGHT (C) 2008 THE THOMSON CORPORATION

FILE 'BIOTECHABS' ACCESS NOT AUTHORIZED

FILE 'BIOTECHDS' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (C) 2008 THE THOMSON CORPORATION

FILE 'USPAT2' ENTERED AT 11:53:34 ON 05 FEB 2008
CA INDEXING COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIDS' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (C) 2008 THE THOMSON CORPORATION

FILE 'WPINDEX' ACCESS NOT AUTHORIZED

FILE 'USPATOLD' ENTERED AT 11:53:34 ON 05 FEB 2008
CA INDEXING COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'CAPLUS' ENTERED AT 11:53:34 ON 05 FEB 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'ANABSTR' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (c) 2008 THE ROYAL SOCIETY OF CHEMISTRY (RSC)

FILE 'BIOENG' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (C) 2008 Cambridge Scientific Abstracts (CSA)

FILE 'BIOTECHNO' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (C) 2008 Elsevier Science B.V., Amsterdam. All rights reserved.

FILE 'ESBIOBASE' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (C) 2008 Elsevier Science B.V., Amsterdam. All rights reserved.

FILE 'LIFESCI' ENTERED AT 11:53:34 ON 05 FEB 2008
COPYRIGHT (C) 2008 Cambridge Scientific Abstracts (CSA)

=> s L6
   1 FILES SEARCHED...
   4 FILES SEARCHED...
   9 FILES SEARCHED...
  10 FILES SEARCHED...
L7   54 L6

=> dup rem L7
DUPLICATE IS NOT AVAILABLE IN 'DGENE'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L7
L8   48 DUP REM L7 (6 DUPLICATES REMOVED)

=> s L8 not py>2004
L9   12 L8 NOT PY>2004

=> d L9 ibib abs 1-12

L9   ANSWER 1 OF 12 DGENE COPYRIGHT 2008 THE THOMSON CORP on STN
ACCESSION NUMBER: AAZ36224 DNA   DGENE
TITLE: Isolated nucleic acids encoding nitrile hydratase and amidase
                  from thermophilic Bacillus, useful for conversion of

acrylonitrile to acrylamide -
INVENTOR: Oriel P J; Padmakumar R; Kim S H
PATENT ASSIGNEE: (UNMS)UNIV MICHIGAN STATE.
PATENT INFO: WO 9955719 A1 19991104 71
APPLICATION INFO: WO 1999-US6888 19990330
PRIORITY INFO: US 1998-83485 19980429
US 1999-248528 19990210
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-013413 [01]
DESCRIPTION: The 16S rRNA gene sequence for Bacillus sp. BR449.
AN AAZ36224 DNA DGENE
AB The present sequence represents the 16S ribosomal (rRNA) gene sequence of Bacillus sp. BR449 (ATCC 202119). The genus/species of BR449 was determined by comparing its 16S rRNA gene sequence with that of other bacteria. A high level of identity was seen with other Bacillus sp., indicating that BR449 is a Bacillus. The specification describes a BR449 nitrile hydratase comprising an alpha subunit and a beta subunit, that is optimally active at greater than 55 degrees Celsius, and stable at greater then 60 degrees Celsius. The enzyme contains cobalt, and converts nitriles to amides without significant production of its corresponding acid. As the BR449 nitrile hydratase, unlike known nitrile hydratases, does not require a low temperature, cooling is not necessary and both reaction rate and product solubility are improved. The enzyme also has high resistance to substrate inhibition, allowing a high concentration of acrylonitrile in the reaction mixture. The nitrile hydratase and cells that express it, are used to convert acrylonitrile to acrylamide, a starting material for polymers, and may also be used to hydrate many other nitriles. The enzymatic production of acrylamide from acrylonitrile generates fewer waste products and requires less energy than the conventional copper-catalysed process. An associated amidase is used to convert amides to the corresponding acid. The nitrile hydratase polynucleotide is used to produce transformants for recombinant production of the nitrile hydratase without expression of the associated amidase.

L9 ANSWER 2 OF 12 BIOTECHDS COPYRIGHT 2008 THE THOMSON CORP. on STN
ACCESSION NUMBER: 2005-01712 BIOTECHDS <<LOGINID::20080205>>
TITLE: Novel Comamonas testosteroni derived polynucleotide encoding alpha and beta subunits of nitrile hydratase enzyme, accessory protein, and amidase, useful for catalyzing hydration of nitriles to amides and amides to carboxylic acids;
isolation of nitrile-hydratase, an accessory protein and an amidase from Comamonas testosteroni useful as a biocatalyst for the hydration of a nitrile
AUTHOR: PAYNE M S; DICOSIMO R; GAVAGAN J E; FALLON R D
PATENT ASSIGNEE: PAYNE M S; DICOSIMO R; GAVAGAN J E; FALLON R D
PATENT INFO: US 2004225116 11 Nov 2004
APPLICATION INFO: US 2003-431966 8 May 2003
PRIORITY INFO: US 2003-431966 8 May 2003; US 2003-431966 8 May 2003
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-821018 [81]
AN 2005-01712 BIOTECHDS <<LOGINID::20080205>>
AB DERWENT ABSTRACT:
NOVELTY - An isolated polynucleotide (I) encoding the alpha, and beta subunits of a nitrile hydratase (NHase) enzyme, an accessory protein, and an amidase (Am) and comprising a fully defined Comamonas

testosteroni 5-MGAM-4D derived sequence (S1) of 3449 base pairs as given in the specification, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for: (1) an isolated polynucleotide (II) encoding a polypeptide comprising the alpha-subunit of NHase enzyme having fully defined C. testosteroni 5-MGAM-4D derived sequence (S2) of 210 amino acids as given in the specification, where (II) has fully defined sequence (S3) of 633 base pairs as given in the specification; (2) an isolated polynucleotide (III) encoding a polypeptide having 90% identity to (II); (3) an isolated polypeptide (IV) having (S2); (4) an isolated polynucleotide (V) encoding a polypeptide comprising the beta-subunit of NHase enzyme having a fully defined sequence (S4) of 218 amino acids as given in the specification, where (V) has a fully defined sequence (S5) of 657 base pairs as given in the specification; (5) an isolated polynucleotide (VI) encoding a polypeptide having 80% identity to (S4); (6) a polypeptide (VII) having (S4); (7) an isolated polynucleotide (VIII) encoding the alpha and beta subunits of NHase enzyme and having fully defined sequence of 1386 base pairs as given in the specification; (8) an isolated polynucleotide (IX) encoding the alpha and beta subunits of NHase enzyme and an accessory protein, and having a fully defined sequence of 2223 base pairs as given in the specification; (9) an isolated polynucleotide (X) encoding a polypeptide comprising an amidase enzyme having a fully defined sequence (S6) of 468 amino acids as given in the specification, where has a fully defined sequence of 1407 base pairs as given in the specification; (10) an isolated polynucleotide (XI) encoding a polypeptide having amidase enzyme and having 95% identity to polypeptide having (S6); (11) a polypeptide (XII) having (S6); (12) an isolated polynucleotide (XIII) encoding a polypeptide comprising an accessory protein and having a fully defined sequence (S7) of 71 amino acids as given in the specification, where (XIII) has a fully defined sequence of 216 base pairs as given in the specification; (13) a polypeptide (XIV) having (S7); (14) an expression vector (V1) comprising (II), (III), (V), (VI), (VIII), (IX), (X), (XI) or (XIII); (15) an expression vector (V2) as contained in Escherichia coli SW132 designated ATCC PTA-5073 or as contained in E.coli SW137 designated ATCC PTA-5074; (16) transformed microbial host cell (TC1) comprising (V1), (V2) or (V3); (17) a purified transformed microbial host cell (TC2) chosen from E.coli SW132 designated ATCC PTA-5073 and a purified microbial host cell E.coli SW137 designated ATCC PTA-5074; (18) converting (M1) a substrate containing one or more nitrile functional groups to an amide, involves contacting, under suitable conditions, a transformed microbial host cell expressing a NHase polypeptide encoded by (IX) with a substrate containing one or more nitrile functional groups, and recovering the produced amide; (19) hydrating (M2) methacrylonitrile to methoacrylamide, involves contacting methacrylonitrile, under suitable reaction conditions, with a catalyst having NHase activity from Comamonas testosteroni 5-MGAM-4D; and (20) hydrating (M3) acrylonitrile to acrylamide, involves contacting acrylonitrile, under suitable reaction conditions, with a catalyst having NHase activity from Comamonas testosteroni 5-MGAM-4D.

BIOTECHNOLOGY - Preferred Microbial Host: TC1 is a bacterium, yeast, or filamentous fungi. TC1 is a bacterium chosen from E.coli, Pseudomonas, Rhodococcus, Acinectobacter Bacillus, and Streptomyces, a yeast chosen from Pichia, Hansenula and Saccharomyces or a filamentous fungi chosen from Aspergillus, Neurospora, and Penicillium. TC1 is preferably E.coli. Preferred Method: In (M1), the substrate containing at least one nitrile functional group is a nitrile of formula R-C=N (F1) or N=C-R-C=N (F2). R = 1-9C alkyl, linear, branched, or cyclic optionally substituted, 1-9C alkenyl, linear, branched, or cyclic optionally substituted or 1-9C aryl, optionally substituted. The nitrile is 2-hydroxynitrile, 3-hydroxynitrile, or 4-hydroxynitrile. The R of (F2) is 1-4C alkyl,

linear, or branched. The nitrile is chosen from malononitrile, adiponitrile, glutaronitrile, and 2-methylglutaronitrile. The R of (F1) is 1-4C alkenyl, linear, or branched. The nitrile is preferably acrylonitrile or methacrylonitrile. In (M1)-(M3), the catalyst is in the form of whole cells, permeabilized microbial cells, one or more components of a microbial cell extract, partially purified enzyme , or purified enzyme. The catalyst is immobilized on or in a soluble or insoluble support. The catalyst is immobilized in alignate or carageenan.

USE - TC1 is useful for producing polypeptides, which involves culturing TC1 under suitable conditions and recovering the produced polypeptide (claimed). (I) is useful for catalyzing hydration of certain nitriles to corresponding amides and the amides to corresponding carboxylic acids.

EXAMPLE - Comamonas testosteroni 5-MGAM-4D (ATCC 55744) was grown in LB media at 37degreesC, with shaking. Genomic DNA was prepared. Southern analysis was performed on EcoRI restricted genomic DNA using Pseudomonas putida NRRL-18668 genes encoding nitrile hydratase alpha, and beta subunits as probe. The alpha and beta probes each showed positive hybridization to the same 5.7 kb EcoRI DNA fragment. Genomic DNA fragment encoding C.testosteroni 5-MGAM-4D NHase was cloned. The nucleotide sequence of the pKP57 insert was determined using an ABI 377-XL DNA sequence. Nucleotide sequences of the pKP57 insert encoding NHase alpha, and beta-subunits were a fully defined sequence of 633 and 657 base pairs as given in the specification, respectively. Deduced amino acid sequences of the pKP57 insert for the alpha, and beta-subunits were a fully defined sequence of 210 and 218 amino acids as given in the specification, respectively. C.testosteroni 5-MGAM-4D NHase was produced by expressing the nucleotide. Production of alpha (23 kDa) and beta (23 kDa) proteins was confirmed by standard sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) analysis. Growth and induction of Escherichia coli BL21 (DE3) cells harboring pSW131 was carried out. Cells were then harvested by centrifugation, washed twice in buffer (0.1 M potassium phosphate pH 7.0) and suspended at 100 mg wet cells/ml in buffer. The nitrilase activity assay mix included cells (50 mg/ml), 3-hydroxy- valeronitrile (0.3 M) and buffer (0.1 M potassium phosphate, pH 7.0) stirred at ambient temperature. High performance liquid chromatography (HPLC) analysis demonstrated 17 % conversion of 3-HVN to the corresponding amide (3-hydroxyvaleramide) in 15 minutes. Genomic DNA from C.testosteroni 5-MGAM-4D was prepared, restricted with PstI, and subjected to Southern analysis using a standard PCR product comprising the first 0.6 kb of the pKP57 insert as a probe. Probe labeling, hybridization and detection systems. This probe gave hybridized to a 2.4 kb PstI fragment. Genomic DNA digested with PstI was subjected to standard agarose gel electrophoresis. DNA fragments in the size range of approximately 2-4 kb were isolated and ligated into PstI restricted pUC1 g. This plasmid library was plated and screened with the same 0.6 kb probe. Probe labeling, hybridization and detection were done using ECL random primer labeling and detection systems. A positively hybridizing colony was isolated and determined to contain an insert of 2.4 kb (pKP59). Nucleotide sequencing confirmed that the insert is a DNA fragment that overlaps the EcoRI DNA fragment previously cloned (pKP57). Thus, by combining the nucleotide sequences from pKP57 and pKP59, the complete nucleotide sequence for the amidase gene was determined (a fully defined sequence of 1407 base pairs as given in the specification). The deduced amidase amino acid sequence was a fully defined sequence of 468 amino acids as given in the specification. The nucleotide sequence of a 7.4 kb DNA fragment from C.testosteroni 5-MGAM-4D comprising complete coding sequences for amidase and NHase comprises a fully defined sequence of 7415 base pairs as given in the specification. (37 pages)

L9 ANSWER 3 OF 12 BIOTECHDS COPYRIGHT 2008 THE THOMSON CORP. on STN
ACCESSION NUMBER: 2002-02697 BIOTECHDS <<LOGINID::20080205>>
TITLE: Culturing microbes which produce nitrile-hydratase with keto-sugar or sugar alcohol and cobalt to increase yield; with use of Rhodococcus rhodochrous culture medium
AUTHOR: Ryuno K; Kobayashi E
PATENT ASSIGNEE: Mitsubishi-Rayon
LOCATION: Tokyo, Japan.
PATENT INFO: WO 2001070936 27 Sep 2001
APPLICATION INFO: WO 2001-JP2232 21 Mar 2001
PRIORITY INFO: JP 2000-78484 21 Mar 2000
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
OTHER SOURCE: WPI: 2001-656855 [75]
AN 2002-02697 BIOTECHDS <<LOGINID::20080205>>
AB Method of culturing a microbe which can produce a nitrile-hydratase (EC-4.2.1.84) uses a culture medium which contains a sugar alcohol and/or a keto sugar, and cobalt ion. The enzyme is used as an energy-saving catalyst in the production of amides from nitriles, especially acrylamide from acrylonitrile.
The presence of a sugar component such as fructose or mannitol reduces the growth inhibition due to the cobalt ion and gives a high yield of microbial cells with nitrile-hydratase activity in a short time. In an example, Rhodococcus rhodochrous was cultured and nitrile-hydratase activity was measured. (18pp)

L9 ANSWER 4 OF 12 BIOTECHDS COPYRIGHT 2008 THE THOMSON CORP. on STN
ACCESSION NUMBER: 1995-14739 BIOTECHDS <<LOGINID::20080205>>
TITLE: Bioconversion of acrylonitrile to acrylamide in aqueous two-phase system; using Pseudomonas putida with nitrile-hydratase activity
AUTHOR: Zhao F; Wu J; Liao H
CORPORATE SOURCE: Univ.Shanghai-Jiao-Tong
LOCATION: Department of Biological Science and Technology, Shanghai Jiao Tong University, Shanghai 200030, People's Republic of China.
SOURCE: Ind.Microbiol.; (1995) 25, 3, 6-12
CODEN: GOWEEK
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AN 1995-14739 BIOTECHDS <<LOGINID::20080205>>
AB Acrylamide was prepared from acrylonitrile in aqueous two-phase system using Pseudomonas putida JP-1 cells containing nitrile-hydratase (EC-4.2.1.84) as biocatalyst. The aqueous two-phase system comprised PEG 6,000 (0.05 g/ml). K2HPO4.3H2O (0.20 g/ml), acrylonitrile (0.30 mol/l) and wet cells (0.10 g/ml). The pH of the system was 9.0 and the optimum temperature for the conversion was determined to be 25 deg. At pH 10.0, nitrile-hydratase activity in P. putida JP-1 cells was at its most stable. The lower the temperature the better the thermostability of the nitrile-hydratase in the cells. During the enzyme-catalyzed conversion, acrylonitrile was added at certain time intervals to produce acrylamide and the acrylamide formed was purified. (4 ref)

L9 ANSWER 5 OF 12 USPAT2 on STN
ACCESSION NUMBER: 2003:213842 USPAT2 <<LOGINID::20080205>>
TITLE: Method for producing methacrylic acid acrylic acid with a combination of enzyme catalysts
INVENTOR(S): Dicosimo, Robert, Rockland, DE, United States
Fallon, Robert D., Elkton, MD, United States

Gavagan, John E., Wilmington, DE, United States
Manzer, Leo Ernest, Wilmington, DE, United States
PATENT ASSIGNEE(S): E. I. du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6670158	B2	20031230
APPLICATION INFO.:	US 2002-67652		20020205 (10)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Lilling, Herbert J.
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 626
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides a process for the hydrolysis of acrylonitrile to acrylic acid, and for the hydrolysis of methacrylonitrile to methacrylic acid, in high yield and at high concentration with high specificity. Acrylonitrile or methacrylonitrile is hydrolyzed in a suitable aqueous reaction mixture by a catalyst characterized by a nitrile hydratase and amidase activity of Comamonas testosteroni 5-MGAM-4D, producing the corresponding acid. The acrylic acid or methacrylic acid is isolated as the acid or corresponding salt.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 6 OF 12 USPAT2 on STN
ACCESSION NUMBER: 2002:32221 USPAT2 <<LOGINID::20080205>>
TITLE: Method for stabilizing nitrilase activity and preserving microbial cells with carbamate salts
INVENTOR(S): Dicosimo, Robert, Rockland, DE, United States
Ben-Bassat, Arie, Newark, DE, United States
Fallon, Robert D., Elkton, MD, United States
PATENT ASSIGNEE(S): E. I. du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6677149	B2	20040113
APPLICATION INFO.:	US 2001-854498		20010514 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2000-614914, filed on 12 Jul 2000, now patented, Pat. No. US 6368804
Continuation-in-part of Ser. No. US 1999-352015, filed on 12 Jul 1999, now patented, Pat. No. US 6251646
DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Marx, Irene
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 1029
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method for preserving immobilized or unimmobilized microbial cells having nitrilase activity and for stabilizing the nitrilase activity of unimmobilized or immobilized microbial cells has been developed. Aqueous suspensions containing at least 100 mM bicarbonate, carbonate, or carbamate salts limit microbial contamination of the stored enzyme catalyst, as well as stabilize the desired nitrilase activity of the unimmobilized or immobilized cells. Microorganisms which are

characterized by an nitrilase activity and are stabilized and preserved by this method include Acidovorax facilis 72-PF-15 (ATCC 55747), Acidovorax facilis 72-PF-17 (ATCC 55745), Acidovorax facilis 72W (ATCC 55746), and transformed microbial cells having nitrilase activity, the host cells transformed with Acidovorax facilis 72W nitrilase activity. Especially preferred is an embodiment using ammonium carbamate as the inorganic salt.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 7 OF 12 WPIDS COPYRIGHT 2008 THE THOMSON CORP on STN
ACCESSION NUMBER: 1988-201154 [29] WPIDS
DOC. NO. CPI: C1988-089709 [21]
TITLE: Production of amide cpds. from corresp. nitrile cpd. - using water soluble enzyme comprising 2 heterogeneous sub-units as catalyst
DERWENT CLASS: D16; E19
INVENTOR: GOMI K; KAWAKAMI K; NAGANO O
PATENT ASSIGNEE: (KEIS-N) KEISITSU RYUBUN SHI
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 63137688	A	19880609	(198829)*	JA	7[0]	
JP 03054558	B	19910820	(199137)	JA		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 63137688 A		JP 1986-284150	19861201
JP 03054558 B		JP 1986-284150	19861201

PRIORITY APPLN. INFO: JP 1986-284150 19861201
AN 1988-201154 [29] WPIDS
AB JP 63137688 A UPAB: 20050428
In the production of amide cpds., an amide cpd. is generated from the corresp. nitrile cpd. by using a water-soluble enzyme comprising two heterogeneous subunits as a catalyst.
Specifically, the enzyme is derived from Rhodococcus sp. AK-32 (FERM P-8269). The enzyme is purified from the culture of the strain by homogenising cells, precipitation with ammonium sulphate, dialysis, anion-exchange, gel filtration, etc.. Crude enzyme solution is used, but amidase activity in the enzyme solution must be removed.
The reaction conditions are pH 8-9, at 0-10 deg.C, 0.01-0.1 mole ion/l, and nitrile concentration 0.1-5 weight%. Pref. nitrile cpds. used contain less than
6C.Methacrylonitrile and acrylonitrile are most pref..
Methacrylamide and acrylamide are produced as a result.
ADVANTAGE - The amide cpds. are produced in high yield, rapidly under mild condition, and with a small amount of catalyst and without generation of side prods.. - In an example, the enzyme derived from Rhodococcus sp. AK-32 was dissolved in 0.05M KH2PO4 (pH 8.5) solution (100 pts.) at 0.5 deg.C. Concentration of the enzyme was 0.01 weight%. Methacrylonitrile
(17 pts.) was added at 0.5 deg.C. After 2 hours, methacrylonitrile was consumed completely and methacrylamide crystal was produced. The crystal was separated from the reaction solution and was washed with water. No

methacrylic acid was detected in the reaction solution.

L9 ANSWER 8 OF 12 USPATOLD on STN
ACCESSION NUMBER: 1973:72176 USPATOLD
TITLE: PASTE FOR GUMMED TAPE AND PROCESS FOR PRODUCING THE SAME FROM HYDROLYZED STARCH
INVENTOR(S): YOSHIZAWA A
KITAZAWA T
PATENT ASSIGNEE(S): NIHON RIKA SEISHI KABUSHIKI KAISHA

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 3770672	A	19731106
APPLICATION INFO.:	US 1971-114342		19710201

	NUMBER	DATE
PRIORITY INFORMATION:	US 1971-114342	19710210

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: LEE, LESTER L
LINE COUNT: 431
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 9 OF 12 USPATOLD on STN
ACCESSION NUMBER: 1972:73888 USPATOLD
TITLE: MACROPOROUS ENZYME REACTOR
INVENTOR(S): REYNOLDS JOHN H
PATENT ASSIGNEE(S): MONSANTO COMPANY, INC.

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 3705084	A	19721205
APPLICATION INFO.:	US 1971-112802		19710201

	NUMBER	DATE
PRIORITY INFORMATION:	US 1970-20639	19700318
	US 1971-112802	19710204

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: GOLIAN, JOSEPH M
LINE COUNT: 564
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 10 OF 12 USPATOLD on STN
ACCESSION NUMBER: 1967:12877 USPATOLD
TITLE: Compositions and method for binding bile acids in vivo including hypocholesteremics
INVENTOR(S): TENNENT DAVID M
WOLF FRANK J

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 3308020	A	19670307
APPLICATION INFO.:	US 1961-139880		19610922

	NUMBER	DATE

PRIORITY INFORMATION: US 1961-139880 19610922
DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: MEYERS, ALBERT T
LINE COUNT: 518
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 11 OF 12 BIOENG COPYRIGHT 2008 CSA on STN
ACCESSION NUMBER: 2004011015 BIOENG <<LOGINID::20080205>>
DOCUMENT NUMBER: 356263
TITLES: Acrylamide production in an ultrafiltration-membrane bioreactor using cells of Brevibacterium imperialis CBS 489-74
AUTHOR: Cantarella, M; Spera, A; Cantarella, L; Alfani, F
CORPORATE SOURCE: Univ of L'Aquila, L'Aquila, Italy
SOURCE: Journal of Membrane Science. Vol. 147, no. 2, pp. 279-290. 2 Sep 1998.
Published by: ELSEVIER SCI B.V., AMSTERDAM, (NETHERLANDS)
ISSN: 0376-7388
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 2004011015 BIOENG <<LOGINID::20080205>>
AB Both differential and integral UF-membrane reactors were tested for the bioconversion of acrylonitrile into acrylamide. Use was made of the commercially available flat membrane cell Amicon Mod.52 and the UF-membranes FS81PP, GR81PP, and YM100. The enzymatic reaction was catalyzed by the nitrile hydratase (NHase) present in resting cells of Brevibacterium imperialis CBS 489-74. The system was operated at 4 degree C and 10 degree C. Acrylonitrile concentration ranged from 50 to 500 mM. The membrane resistance to chemicals was complete at acrylonitrile and acrylamide concentrations up to 800 mM and 2 M, respectively. No rejection of solute was determined. Membranes totally retained the resting cells and no fouling was observed working with 2 and 16 mg of biocatalyst in stirred systems. Membrane compaction was apparently responsible for roughly 35% flux loss during the first 3-4 h of operation. The laboratory scale membrane bioreactor, continuously operating, allowed to show the dependence of enzyme deactivation on acrylonitrile concentration and process time. Substrate concentration higher than 100 mM were highly detrimental for NHase stability. The acrylamide yield reached in the multi-cycle process operating with 5.6 g/l of resting cells was 93.7% and the product concentration during roughly 450 h of bioconversion attained 8.3% (w/v). Decay of specific membrane flux was 98% of the initial value.

L9 ANSWER 12 OF 12 Elsevier BIOBASE COPYRIGHT 2008 Elsevier Science B.V. on STN
ACCESSION NUMBER: 1999265887 ESBIOBASE <<LOGINID::20080205>>
TITLE: Role of cytochrome P450 2E1 in the metabolism of acrylamide and acrylonitrile in mice
AUTHOR: Sumner S.C.J.; Fennell T.R.; Moore T.A.; Chanas B.; Gonzalez F.; Ghanayem B.I.
CORPORATE SOURCE: S.C.J. Sumner, Chem. Industry Inst. of Toxicology, 6 Davis Dr., Res. Triangle Park, NC 27709-2137, United States.
E-mail: Sumner@ciit.org
SOURCE: Chemical Research in Toxicology, (1999), 12/11 (1110-1116), 37 reference(s)
CODEN: CRTOEC ISSN: 0893-228X
DOCUMENT TYPE: Journal; Article

COUNTRY: United States
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Acrylonitrile (AN) and acrylamide (AM) are commonly used in the synthesis of plastics and polymers. In rodents, AM and AN are metabolized to the epoxides glycidamide and cyanoethylene oxide, respectively. The aim of this study was to determine the role of cytochrome P450 in the metabolism of AM and AN in vivo. Wild-type (WT) mice, WT mice pretreated with aminobenzotriazole (ABT, 50 mg/kg ip, 2 h pre-exposure), and mice devoid of cytochrome P450 2E1 (P450 2E1-null) were treated with 50 mg/kg [.sup.1.sup.3CLAM po. WT mice and P450 2E1-null mice were treated with 2.5 or 10 mg/kg [.sup.1.sup.3CLAN po. Urine was collected for 24 h, and metabolites were characterized using .sup.1.sup.3C NMR. WT mice excreted metabolites derived from the epoxides and from direct GSH conjugation with AM or AN. Only metabolites derived from direct GSH conjugation with AM or AN were observed in the urine from ABT-pretreated WT mice and P450 2E1-null mice. On the basis of evaluation of urinary metabolites at these doses, these data suggest that P450 2E1 is possibly the only cytochrome P450 enzyme involved in the metabolism of AM and AN in mice, that inhibiting total P450 activity does not result in new pathways of non- P450 metabolism of AM, and that mice devoid of P450 2E1 do not excrete metabolites of AM or AN that would be produced by oxidation by other cytochrome P450s. P450 2E1-null mice may be an appropriate model for the investigation of the role of oxidative metabolism in the toxicity or carcinogenicity of these compounds.

=> d hist full

(FILE 'HOME' ENTERED AT 11:39:14 ON 05 FEB 2008)

FILE 'REGISTRY' ENTERED AT 11:39:29 ON 05 FEB 2008
L1 1 SEA ABB=ON PLU=ON 107-13-1/RN
L2 1 SEA ABB=ON PLU=ON 79-06-1/RN

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 11:40:16 ON 05 FEB 2008

FILE 'REGISTRY' ENTERED AT 11:40:35 ON 05 FEB 2008
SEL L1 CHEM
SEL L2 CHEM

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 11:40:50 ON 05 FEB 2008
SEA E1-17 (S) E18-26
---
16 FILE AGRICOLA
9 FILE ANABSTR
19 FILE ANTE
5 FILE AQUALINE
2 FILE AQUASCI
42 FILE BIOENG
107 FILE BIOSIS
143 FILE BIOTECHABS
143 FILE BIOTECHDS
29 FILE BIOTECHNO

```
              16   FILE CABA
            3865   FILE CAPLUS
              64   FILE CEABA-VTB
              30   FILE CIN
               4   FILE CONFSCI
               2   FILE CROPU
               3   FILE DDFB
               4   FILE DDFU
              51   FILE DGENE
              10   FILE DISSABS
               3   FILE DRUGB
               4   FILE DRUGU
               1   FILE EMBAL
              64   FILE EMBASE
              43   FILE ESBIOBASE
               7   FILE FROSTI
              14   FILE FSTA
               6   FILE HEALSAFE
            3317   FILE IFIPAT
              57   FILE LIFESCI
              53   FILE MEDLINE
              45   FILE NTIS
             291   FILE PASCAL
               2   FILE PHIN
             191   FILE PROMT
              43   FILE RDISCLOSURE
             306   FILE SCISEARCH
               1   FILE SYNTHLINE
             240   FILE TOXCENTER
              72   FILE USGENE
           22634   FILE USPATFULL
            3144   FILE USPATOLD
            2942   FILE USPAT2
              10   FILE WATER
            4551   FILE WPIDS
              28   FILE WPIFV
            4551   FILE WPINDEX
L3              QUE ABB=ON  PLU=ON  (ACRYLON/BI OR ACRYLONITRILE/BI OR
                CARBACRYL/BI OR CYANOETHENE/BI OR CYANOETHYLENE/BI OR FUMIGRAIN
                /BI OR "NSC 6362"/BI OR PROPENENITRILE/BI OR VCN/BI OR
                VENTOX/BI OR "VINYL CYANIDE"/BI OR 107-13-1/BI OR 2-PROPENENITR
                ILE/BI OR 29754-21-0/BI OR 63908-52-1/BI OR 769126-92-3/BI OR
                769134-66-9/BI) (S) (ACRYLAMIDE/BI OR "ACRYLIC AMIDE"/BI OR
                "BIO-ACRYLAMIDE 50"/BI OR ETHYLENECARBOXAMIDE/BI OR "NSC
                7785"/BI OR PROPENAMIDE/BI OR "VINYL AMIDE"/BI OR 2-PROPENAMIDE
                /BI OR 79-06-1/BI)
               ---------
                SEA L3 (S) ENZYM########
               ---------
               2   FILE AGRICOLA
               1   FILE ANABSTR
               2   FILE AQUASCI
              19   FILE BIOENG
              11   FILE BIOSIS
              65   FILE BIOTECHABS
              65   FILE BIOTECHDS
              12   FILE BIOTECHNO
               1   FILE CABA
              47   FILE CAPLUS
              12   FILE CEABA-VTB
               2   FILE CIN
```

```
               30   FILE DGENE
                5   FILE EMBASE
               11   FILE ESBIOBASE
                1   FILE FROSTI
                8   FILE FSTA
                1   FILE HEALSAFE
               16   FILE IFIPAT
               24   FILE LIFESCI
                3   FILE MEDLINE
               13   FILE PASCAL
                8   FILE PROMT
                1   FILE RDISCLOSURE
                7   FILE SCISEARCH
                3   FILE TOXCENTER
               72   FILE USGENE
              125   FILE USPATFULL
                5   FILE USPATOLD
               13   FILE USPAT2
                1   FILE WATER
               54   FILE WPIDS
                1   FILE WPIFV
               54   FILE WPINDEX
L4               QUE ABB=ON  PLU=ON  L3 (S) ENZYM########
                 ---------
                 SEA L4 (S) (CONVERT### OR PRODUC### OR GENERAT###)
                 ---------
                1   FILE ANABSTR
               13   FILE BIOENG
                5   FILE BIOSIS
               45   FILE BIOTECHABS
               45   FILE BIOTECHDS
                4   FILE BIOTECHNO
                1   FILE CABA
               15   FILE CAPLUS
                5   FILE CEABA-VTB
               27   FILE DGENE
                1   FILE EMBASE
                5   FILE ESBIOBASE
                1   FILE FROSTI
                1   FILE FSTA
               11   FILE IFIPAT
               14   FILE LIFESCI
                7   FILE PASCAL
                4   FILE PROMT
                1   FILE RDISCLOSURE
                2   FILE SCISEARCH
               72   FILE USGENE
               75   FILE USPATFULL
                3   FILE USPATOLD
               10   FILE USPAT2
               15   FILE WPIDS
               15   FILE WPINDEX
L5               QUE ABB=ON  PLU=ON  L4 (S) (CONVERT### OR PRODUC### OR
                 GENERAT###)
                 ---------
                 SEA L5 AND (DETECT### OR DETERMIN### OR MEASUR### OR QUANTITAT#
                 ---------
                1   FILE ANABSTR
                1   FILE BIOENG
                9   FILE BIOTECHABS
                9   FILE BIOTECHDS
```

```
                1   FILE BIOTECHNO
                2   FILE CAPLUS
               20   FILE DGENE
                1   FILE ESBIOBASE
                1   FILE LIFESCI
                1   FILE PASCAL
               72   FILE USPATFULL
                3   FILE USPATOLD
                9   FILE USPAT2
                6   FILE WPIDS
                6   FILE WPINDEX
L6              QUE ABB=ON  PLU=ON  L5 AND (DETECT### OR DETERMIN### OR
                MEASUR### OR QUANTITAT###)
                ---------
                D RANK

     FILE 'DGENE, BIOTECHDS, USPAT2, WPIDS, USPATOLD, CAPLUS, ANABSTR, BIOENG,
     BIOTECHNO, ESBIOBASE, LIFESCI' ENTERED AT 11:53:34 ON 05 FEB 2008
L7           54 SEA ABB=ON  PLU=ON  L6
L8           48 DUP REM L7 (6 DUPLICATES REMOVED)
L9           12 SEA ABB=ON  PLU=ON  L8 NOT PY>2004
                D L9 IBIB ABS 1-12
```